Question #143
Key: C

The sample -1 moment is $\frac{1}{6}\left(\frac{1}{15}+\frac{1}{45}+\frac{1}{140}+\frac{1}{250}+\frac{1}{560}+\frac{1}{1340}\right)=0.017094$. The sample -2 moment is $\frac{1}{6}\left(\frac{1}{15^2}+\frac{1}{45^2}+\frac{1}{140^2}+\frac{1}{250^2}+\frac{1}{560^2}+\frac{1}{1340^2}\right)=0.00083484$.

Then the equations are

$$0.017094=\frac{1}{\theta(\tau-1)},$$

$$0.00083484=\frac{2}{\theta^2(\tau-1)(\tau-2)}.$$

Divide the square of the first equation by the second equation to obtain

$0.35001=\frac{\tau-2}{2(\tau-1)}$ which is solved for $\tau=4.33356$. From the first equation,

$$\theta=\frac{1}{3.33356(0.017094)}=17.55.$$